

Chapter 4 **INSTITUTIONAL/POLICY CONSIDERATIONS**

In order for any state to effectively implement a bioassessment program, it is important to consider not only the technical issues, but the state's legal and policy framework as well. For example, some states rely on "technical addenda" to their water quality control plans that contain sampling protocols and/or numeric biocriteria that can be updated with relative efficiency as new information becomes available, but unfortunately, this may not be an option for California at the present time.

4.1 California's Regulatory Framework

Pursuant to its Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.), the State of California relies on a State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) to implement water quality regulatory programs. In general, the SWRCB adopts statewide plans and policies, and the RWQCBs adopt and enforce region-specific standards. The RWQCBs may adopt standards for regional or localized areas that are more protective of water quality than required by the SWRCB's plans and policies, but the RWQCBs may not adopt standards that are less protective than those adopted by the SWRCB.

Given the large size and diversity of California, and the de-centralized framework for adoption of region-specific standards, it is anticipated that the implementation of bioassessment will need to be appropriately tailored to the regional setting, and biocriteria will need to be developed and, over time, adopted by the RWQCBs.

4.2 California's Standard-Setting Process

The water quality standards setting process in California appears to be more rigorous and time-consuming than in many other states, and once standards are incorporated into a water quality control plan, or "basin plan" (BP), those standards cannot be modified in any way without repeating the entire standard-setting process.

California law also requires that the specific sampling protocols, supporting data, and methods for calculating compliance with standards be specified at the time that standards are adopted. This makes it impossible to modify the sampling methods (for example, if more cost-effective methods become available), or to modify biocriteria (for example, as more data becomes available regarding natural variability) without going through the entire standard-setting process. The rigidity of the standard-setting process will create some key hurdles to implementing biocriteria in California.

Given the difficulty of amending water quality standards in California, the state needs to be relatively certain that any biocriteria, whether narrative or numeric, are both protective of water quality and beneficial uses of water, and also accurate enough so that "false positives" will not occur to any great extent. For example, once biocriteria are adopted, streams found to violate

those criteria could be listed as “impaired,” triggering requirements for mandatory development of Total Maximum Daily Loads (TMDLs).

Options for California include the following:

1. Wait many years before incorporating any numeric or narrative biocriteria into the BPs.
This would be the most conservative approach to avoiding “false positives,” but would abdicate the state’s responsibility under the Clean Water Act to protect and restore the biological integrity of the state’s waters. While the USEPA currently does not require that biocriteria be included in state water quality control plans, this may become a requirement in the not distant future, and the state would be wise to diligently proceed with developing a bioassessment program even if this option is relied upon in the short-term.
2. Focus on narrative biocriteria.
The USEPA has prepared guidance to assist the states in developing narrative biocriteria (USEPA 1992). California could potentially proceed with refining aquatic life uses and developing narrative biocriteria, without specifying mandatory methods or numeric criteria. The numeric information to support decisions based on the narrative criteria could be developed, specified, and refined over time, outside of the water quality control plans. While this may be the best approach available to the SWRCB and RWQCBs at this time, refining the aquatic life uses and developing narrative biocriteria would require significant resources, which the agency does not appear to have available at this time.
3. Revise state law(s) to allow technical addenda outside of the BPs.
Biological systems are more variable than the chemical and physical properties that were the basis of California’s water quality regulatory scheme. In recognizing this fact, California could consider revisions to state law(s) to allow numeric biocriteria to be developed and continually updated, outside of the normal water quality standard-setting process, in order to reflect new biological information. Such an approach would apparently require legislation at the state level.

4.3 Budgetary and Other Considerations

At this time, there appears to be little statewide, programmatic funding for a concerted bioassessment program in California. The SWRCB has no staff positions dedicated to bioassessment. Efforts to implement bioassessment in California have primarily been led by the RWQCBs, using a variety of ephemeral funding sources.

In order to effectively implement a bioassessment program in California, it should be recognized that there are common resource needs throughout the state. Some of the key resource needs are summarized below:

Statewide Coordination

The SWRCB should strive to establish an institutional infrastructure to facilitate on-going coordination of the many different bioassessment efforts throughout California. This would ideally include at least one full-time staff position at the SWRCB dedicated to coordinating

bioassessment programs at the SWRCB and RWQCBs, as well as funding for bringing together relevant experts, on a regular basis, to address issues related to taxonomy, tolerance values, reference site selection, standard-setting, etc.

Reference Site Selection

In order for the state's bioassessment program to be most meaningful and defensible, the state should strive toward objective procedures for selecting reference sites, where possible. This would include the use of Geographic Information Systems (GIS) to allow identification and selection of "minimally-impaired" reference sites based on objective criteria. Staff experienced with the use of GIS are needed, as well as funding for the computer hardware and software needed to perform GIS analyses. Where minimally impaired reference sites are lacking, funding would be needed to review historic literature and convene panels of experts to develop reference conditions based on best professional judgment.

Refinement of Tolerance Values

A fundamental tenet of bioassessment is that some organisms are tolerant to certain types of stress or pollution, while others are very sensitive to stress or pollution. For bioassessment to be most powerful, the tolerance values assigned to each class of organisms (whether species, genus, family, etc.) need to be meaningful and should be based on objective evidence. There is a need for research to refine tolerance values for some classes of organisms found in California.

Determination of Index Period

The "index period" refers to the time of year or "season" that bioassessment samples are collected. In order for data to be comparable between years, it is important that samples be collected in the same index period. However, in a state as large and diverse as California, it is probable that the most appropriate index period will vary from region to region. A degree-day model could be developed to assist in the selection and refinement of the most appropriate index period for the various regions of California.